

Patent Claims:

- 1) Forgery-proof security feature comprising at least one electromagnetic wave-reflecting layer, one polymeric spacer layer and one layer formed of metal clusters each, characterized in that one or several of the layers, in addition to their function in the color shift effect setup, fulfill further security functions.
- 2) Forgery-proof security feature as claimed in claim 1, characterized in that the electromagnetic wave-reflecting layer and/or the cluster layer are partial layers.
- 3) Forgery-proof security feature as claimed in one of claims 1 or 2, characterized in that the polymeric spacer layer has a defined layer thickness course or a step structuring.
- 4) Forgery-proof security feature as claimed in one of claims 1 to 3, characterized in that the polymeric spacer layer is comprised of several layers, each of which can have different layer thicknesses or different layer thickness courses.
- 5) Forgery-proof security feature as claimed in one of claims 1 to 4, characterized in that the polymeric spacer layer is comprised of several partial and/or all-over layers with different indices of refraction.
- 6) Forgery-proof security feature as claimed in one of claims 1 to 5, characterized in that the polymeric spacer layer is applied in the form of symbols and characters, patterns, lines, geometric forms and the like.
- 7) Forgery-proof security feature as claimed in one of claims 1 to 6, characterized in that at least one layer of the polymeric spacer layer or the cover layer is comprised of a polymer with piezoelectric properties.

- 8) Forgery-proof security feature as claimed in one of claims 1 to 7, characterized in that at least one layer of the polymeric spacer layer has one or several optically active structures.
- 9) Forgery-proof security feature as claimed in one of claims 1 to 8, characterized in that the carrier substrate comprises a transfer lacquer layer.
- 10) Forgery-proof security feature as claimed in one of claims 1 to 9, characterized in that the layer is comprised of metal clusters of different metals.
- 11) Forgery-proof security feature as claimed in one of claims 1 to 10, characterized in that at least one of the metal cluster layers has additional functional features.
- 12) Forgery-proof security feature as claimed in claim 11, characterized in that at least one of the metal cluster layers is additionally electrically conductive and/or magnetic and/or fluorescent.
- 13) Forgery-proof security feature as claimed in one of claims 1 to 11, characterized in that the layer system is individualized through the action of electromagnetic waves.
- 14) Forgery-proof security feature as claimed in claim 13, characterized in that the system is individualized through laser treatment.
- 15) Forgery-proof security feature as claimed in one of claims 13 or 14, characterized in that through the action of electromagnetic waves subsequent structuring is carried out.

- 16) Forgery-proof security feature as claimed in claim 15, characterized in that through the structuring pictures, logos, writings, codes, symbols and characters and the like are generated.
- 17) Forgery-proof security feature as claimed in claim 16, characterized in that through the structuring differently colored or colorless regions are obtained.
- 18) Forgery-proof security feature as claimed in one of claims 1 to 17, characterized in that in the spacer layer the fine structure of the printing die is identifiable as a uniquely assignable feature.
- 19) Forgery-proof security feature as claimed in one of claims 1 to 18, characterized in that the security feature is applied onto a substrate or is embedded in a substrate, wherein the substrate optionally has an open-area clearance, which is spanned by the security feature.
- 20) Forgery-proof security feature as claimed in one of claims 1 to 19, characterized in that through the disposition of several sequences of optionally differently structured spacer layers and cluster layers over an all-over or partial reflection layer, different color shift effects are generated.
- 21) Sheet material suitable for the production of a forgery-proof identification feature as claimed in one of claims 1 to 20.
- 22) Sheet material as claimed in claim 21, characterized in that it is provided on one or both sides, all-over or partially with a protective lacquer layer.
- 23) Sheet material as claimed in claim 22, characterized in that the protective lacquer layer is pigmented.

- 24) Sheet material as claimed in one of claims 21 to 23, characterized in that it is provided on one or both sides, all-over or partially with a sealable adhesive, for example a hot or cold seal adhesive, or a self-adhesion coating.
- 25) Sheet material as claimed in claim 24, characterized in that the adhesion coating is pigmented.
- 26) Method for the production of a security feature as claimed in one of claims 1 to 20, characterized in that onto a carrier substrate a partial or all-over electromagnetic wave-reflecting layer and subsequently one or several partial and/or all-over polymeric layers of defined thickness are applied by means of an impression cylinder, which has an unmistakable fine structure, whereupon onto the spacer layer a layer formed of metal clusters, which are formed by means of a method employing vacuum technology or out of solvent-based systems, is applied.
- 27) Method as claimed in claim 26, characterized in that onto a carrier substrate a layer formed of metal clusters, which are formed by means of a method employing vacuum technology, subsequently one or several partial and/or all-over polymeric layers of defined, optionally varying, thickness are applied by means of an impression cylinder, which contains an unmistakable fine structure, whereupon subsequently a partial or all-over electromagnetic wave-reflecting layer and thereon a further cluster layer are applied.
- 28) Method as claimed in one of claims 26 or 27, characterized in that additionally a black background layer is applied.
- 29) Method as claimed in one of claims 26 to 28, characterized in that the polymeric spacer layer and/or the background layer are structured.

- 30) Method as claimed in one of claims 26 to 29, characterized in that the structuring of the polymeric spacer layer or of the background layer takes place by laser treatment.
- 31) Use of the security features as claimed in one of claims 1 to 20 or of the sheet material as claimed in one of claims 21 to 25 optionally after having been cut into bank notes, data media, security documents, packagings, labels, markers, seals and the like.
- 32) Method for verifying a security feature as claimed in one of claims 1 to 20, characterized in that the different identification features are detected and identified using suitable evaluation devices.
- 33) Method for verifying a security feature as claimed in one of claims 1 to 20, characterized in that the identification features are detected and identified visually.
- 34) Method for verifying security features as claimed in one of claims 1 to 20, characterized in that the forensic features such as DNA, isotopes or fine structure are identified with suitable testing means in the laboratory or on site.